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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/645,186	08/24/2000	Donald Fedyk	10360-062001	4310
26161	7590	06/01/2004		
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			EXAMINER BLOUNT, STEVEN	
			ART UNIT 2661	PAPER NUMBER 8
DATE MAILED: 06/01/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/645,186

Applicant(s)

FEDYK ET AL.

Examiner

Steven Blount

Art Unit

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-14,17-22,24-33,36-41,43-54 and 57-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-14,17-22,24-33,36-41,43-54 and 57-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

A. The drawings are objected to by the examiner, because in figure 2, the large, rectangular background (ie, member 34) has made it so that the smaller boxes inside of it (ie, members 21, etc) are not readable. Appropriate correction is required.

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 5, 7-10, 13, 17, 20-21, 24, 26-29, 32, 36, 39-40, 45-48, 53, and 57 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. patent 6,363,319 to Hsu in view of U.S. patent 6,529,963 to Fredin et al.

With regard to claims 1 - 2, Hsu teaches allocating "flows" by determining if there is sufficient bandwidth (col 3 lines 5+) available, and deciding whether to allocate the resource on the link (path) based on the amount of bandwidth on the link, and a cost; see col 5 lines 15 - 23 and 51, and note that the cost method used includes the shortest hop path (since it states that the cost metric becomes the hop count when the cost equals one, which would correspond to essentially uniform traffic loading conditions throughout the network, the shortest hop count is part of the cost). Hsu et al does not however teach that the path is chosen *exclusively* by the least number of hops to a destination.

Fredin et al teaches that the shortest hop method may be used independent of

the least cost method:

"A variety different algorithms may be used, for example, random, shortest hop, and least cost methods (col 11 lines 29+)...In accordance with another embodiment of the present invention, the shortest hop routing algorithm may be used. In accordance with this aspect of the invention, the routing tables forwarded to each adapter preferably specifies the shortest route for an I/O request to travel from one adapter to another" (col 11 lines 43+).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the shortest hop method exclusively in the routing method taught in Hsu, in light of the teachings of Fredin et al, in order to optimize the data flow in the network.

With regard to the following claims (hereinafter CI), note the following: CI 5: hops and topology database: col 5 lines 55+ and col 11, lines 53+; CI 7: alternative routes: col 7, lines 50+, and col 5 lines 18+; CI 8: MPLS: see col 5 lines 5+ and the entire patent; CI 9: see col 3, lines 5+; CI 10: priority: col 6 lines 17+.

CI 13: see rejection of claim 1 above, and note MPLS is taught; CI 17: see rejection of claim 10; CI 20: see the rejection of claim 1, and note the method steps are capable of being stored on computer readable medium, and see also members 152 and 170 in figure 1D; CI 21: see rejection of claim 2; CI 24: see rejection of claim 5; CI 26: see rejection of claim 7; CI 27: see rejection of claim 8; CI 28: see rejection of claim 9; CI 29: see rejection of claim 10; CI 32: note use of MPLS and see rejection of claim 13; CI 36: see rejection of claim 10; CI 39: see rejection of claim 1, and note that the

apparatus limitations are all taught in the accompanying method limitations; CI 40: see rejection of claim 2; CI 45: see rejection of claim 7; CI 46: see rejection of claim 8; CI 47: see rejection of claim 9; CI 48: see rejection of claim 10; CI 53: see rejections above, especially of claims 1 – 2 and also 8; CI 57: see rejection of claim 10.

3. Claims 3, 6, 14, 22, 25, 33, 41, 43 - 44, and 54 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. patent 6,363,319 to Hsu and U.S. patent 6,529,963 to Fredin as applied above, and further in view of U.S. patent 6,034,946 to Roginsky et al.

With regard to claim 3, Hsu/Fredin teaches the invention as described above, but does not teach comparing cost to a predetermined maximum acceptable cost. Roginsky et al teaches identifying network paths that have “performance characteristics” less than certain threshold values, as is described in col 4, lines 60+ and the abstract (the examiner submits that this is also well known in the art of optimization). It would have been obvious to one of ordinary skill in the art at the time of the invention to have allocated the bandwidth of Hsu/Fredin to a path whose associated cost value does not exceed a predetermined maximum value, in light of the teachings of Roginsky et al, in order to provide a further means of determining the most efficient allocation of resources on the network. With regard to claim 6, note the discussion of sufficient bandwidth above with regard to claims 1 – 2, and also the maximum cost discussion immediately above.

CI 14: see rejection of claim 3; CI 22: see rejection of claim 3; CI 25: see rejection of claim 6; CI 33: see rejection of claim 3; CI 41: see rejection of claim 3; CI 54: see

rejection of claim 3.

4. Claims 11 – 12, 18-19, 30-31, 37-38, 49, 50-52, 58 and 59 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. patent 6,363,319 to Hsu and U.S. patent 6,529,963 to Fredin et al as applied above, and further in view of U.S. patent 5,687,167 to Bertin et al.

With regard to claim 11, Hsu/Fredin teaches the invention as described above, but does not teach taking at least a portion of the bandwidth in the network path that is being used at a different priority level to accommodate the original, predetermined priority level. Bertin et al teaches taking bandwidth from a link with lower priority and giving it to a link of higher priority that needs it in col 3, lines 50+ to col 4, lines 1+.

It would have been obvious, to one of ordinary skill in the art at the time of the invention, to have provided bandwidth to the higher priority connections which lack it from the lower priority connections in Hsu/Fredin, in light of the teachings of Bertin et al, in order to maximize the network resources.

CI 12: it would be obvious to take the bandwidth from the "other" data path, whether it has a higher or lower priority; CI 18: see the rejection of claim 11; CI 19: see rejection of claim 12; CI 30: see rejection of claim 18; CI 31: see rejection of claim 12; CI 37: see rejection of claim 18; CI 38: see rejection of claim 12; CI 49: see rejection of claim 18; CI 50: see rejection of claim 12; CI 51: see figure 10 of Hsu; CI 52: the circuit in figure 1D is programmable; CI 58: see rejection of claim 18; CI 59: see rejection of claim 12.

***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

The Examiner notes that the objection to the drawings has not been corrected.

The Examiner has provided the Fredin et al reference to further clarify the rejection, although he believes that there is still a good argument to be made that the rejection previously made, under 103(a) in view of Hsu standing alone, is proper, for the following reason.

The applicant argues that:

"The Hsu system does not first select a network path having a least number of hops, and then repeat its method if that network does not result in bandwidth allocation, much less repeat its method using network paths having progressively larger numbers of hops."

The examiner disagrees, because in Hsu, it is stated in col 5 lines 48+, that:

"The Dijkstra technique employed by OSPF chooses the path to each destination based on the cumulated cost to that destination. Therefore, if a network has all router links of cost 1, the cost metric becomes equivalent to hop count and the least-cost path is simply the shortest-hop path."

This essentially means that hop count is *one of* the cost metrics used in determining the best path. Since the applicant has used the term "comprising" in the preamble of the independent claims, the examiner submits that Hsu standing alone (since at least part of the cost includes the least hop count, and any other parameters

used in determining it would be merely surplusage) would meet the terms of the claims, but has cited Fredin et al to emphasize that it would be further obvious to use a least hop count exclusively.

Further, it is well known that link state protocols that employ Dijkstra's algorithm employ a variety of values in calculating cost, hop count being an obvious example. (In distance vector routing (for example, protocols such as RIP), cost refers to hop count. A person of ordinary skill in the art would realize that it would be obvious to substitute a distance vector protocol for the link state protocol taught in Hsu, although it is not necessary to reach this conclusion here, since Hsu/Fredin et al clearly meet the terms of the claims).

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



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6. Steven Blount may be reached at 703-305-0319 Monday through Friday between the hours of 9:00 and 5:30.

*[Handwritten signature]*  
Art Patel  
Primary Examiner

SB

*[Handwritten signature]*  
9/23/04